

A VERY hopeful Report has been published by the Winchester College Natural History Society. This is its Fifth Report, though the Society has been in existence ten years. It has not been thought necessary to publish any account of the doings of the Society for five years, though we are assured that it has been none the less doing good work. This is what is wanted, and the present report bears evidence that the Winchester Society is in a healthy and fairly vigorous condition. The sectional reports are good, and the Society has formed some very fair collections.

THE Berlin Philosophical Society, founded in 1843 by the disciples of Hegel, but now numbering amongst its members men of the most various philosophical creeds, has applied the surplus of funds recently collected for a monument in memory of Hegel to the foundation of a Hegel Institution, the object of which is the furtherance of philosophical research. The Society has just issued the following prize theme : "A critical and historical account of the dialectical method of Hegel." The treatises may be written either in German, French or English, and must be sent in before December 31, 1883. The prize is 450 marks (22*l.*).

A NEW natural history serial will soon be published by Enke of Stuttgart. Its editor is Dr. Georg Krebs of Frankfort on the Maine, and its title, *Humboldt, Monatsschrift für die gesammten Naturwissenschaften*.

THE "Encyclopædie der Naturwissenschaften," published by Trewendt of Breslau, is now well advanced. Part 25 contains the seventh instalment of the Dictionary of Zoology, Anthropology, and Ethnology, and only brings it down to *Distoma*. Parts 26 and 27 contain the eleventh and twelfth (the concluding) instalment of the Handbook of Mathematics.

DR. NAGORSKY, having measured the capacities of lungs of 630 boys and 314 girls in the schools of the district of St. Petersburg, now publishes the results of his investigation in a Russian medical paper, the *Surgeon*. He has found that the capacity of lungs, in relation to the weight of the body, is 65 cubic centimetres for each kilogramme of weight in boys, and 57 cubic centimetres for girls. The law of Quetelet being that with children below fifteen years of age, the weight of the body is proportionate to the square of the height, Dr. Nagorsky has found that it is proportional to 2·15 of the same; whilst the capacity of lungs is proportional to 2·4th of the height for boys, and to the square of the height for girls. Dr. Nagorsky's researches will soon be published as a separate work. As to the relation between the weight of man and the capacity of lungs, it is tolerably permanent, and its variations are mostly due to differences in the amount of fat in the bodies of different men.

IN our article on the Geological Congress (NATURE, November 10) in the table of terms, in the first column of p. 35, the word *Cycle* should be *Ère* (*era*).

THE additions to the Zoological Society's Gardens during the past week include a Vervet Monkey (*Cercopithecus lalandii*) from South Africa, presented by Mr. R. M. Edger; a Blackbird (*Turdus merula*), two Song Thrushes (*Turdus musicus*), a Starling (*Sturnus vulgaris*), two Skylarks (*Alauda arvensis*), a Greenfinch (*Ligurnis chloris*), two Chaffinches (*Fringilla cælebs*), two Common Quails (*Coturnix communis*), British, presented by Mr. Edward Lawrence; a Black-winged Peafowl (*Pavo nigri-pennis*) from Cochin China, presented by Mr. J. Marshall; a Common Kestrel (*Tinnunculus alaudarius*), British, presented by Mr. A. Lidbury; a Grecian Ibex (*Capra agagrus*) from South-East Europe, four Orange-cheeked Waxbills (*Estrelida melpoda*), two Common Waxbills (*Estrelida cinerea*) from West Africa, two Maja Finches (*Munia maja*) from Malacca, a Black-headed Finch (*Munia malacca*), an Indian Silver-bill (*Munia malabarica*) from India, a Song Thrush (*Turdus musicus*),

British), a Blue-crowned Parrakeet (*Tanygnathus luzonensis*) from the Philippines, a White-eared Conure (*Conurus leucotis*) from Brazil, deposited; a Bar-tailed Godwit (*Limosa lapponica*), two Razorbills (*Alca torda*), two Common Lapwings (*Vanellus cristatus*), two Golden Plovers (*Charadrius pluvialis*), two Knots (*Tringa canutus*), a Red-throated Diver (*Colymbus septentrionalis*), British, purchased; a Spotted Ichneumon (*Herpestes europunctatus*) from Nepal, a Geoffroy's Dove (*Peristera geoffroii*), two Brazilian Teal (*Querquedula brasiliensis*) from South America, two Mandarin Ducks (*Aix galericulata*) from China, received in exchange.

#### OUR ASTRONOMICAL COLUMN

THE SATURNIAN SYSTEM.—In a memoir published in t. xxvii. 2<sup>me</sup> partie, of *Mémoires de la Société de Physique et d'Histoire Naturelle de Genève*, entitled "Recherches sur Saturne, ses Anneaux et ses Satellites," M. Wilhelm Meyer, assistant-astronomer at the Observatory of Geneva, presents results of his observations made with the 10-inch refractor, the gift of Prof. Plantamour to the establishment, during the opposition of 1880. They consist of measures of the rings and equatorial and polar diameters and observations of the satellites Enceladus, Tethys, Dione, Rhea, and Titan, with elements deduced from them. M. Meyer was not certain that he had observed Mimas in 1880, but in a note he mentions that on the night of September 4, 1881, which was "une des plus belles, quant à la diaphanité de l'atmosphère," he obtained an undoubted observation of it; at 13h. 13m. 27s. Greenwich mean time it was distant 31'' from the centre of Saturn, exactly in the plane of the ring on the preceding side, or, as he expresses it,  $x = -31''$ ,  $y = 0$ .

For the outer diameter of ring A he finds 40''·47 for the mean distance of Saturn, which, like other measures with the filar-micrometer (employed for all the measures at Geneva) is in excess of the results given by the double-image micrometer; Kaiser found the outer diameter with the latter 39''·47. Considering the difficulties attending measures of this class with the filar-micrometer, preference, no doubt, is to be given to the double-image principle, though without much practice there may be a tendency to clip the measures made with the instrument. If it were preferred to take something like a general mean of the reliable measures to this time, the outer diameter of the ring would be found to differ little from 39''·75.

M. Meyer has referred all his times to the meridian of Greenwich, because, as he says, it is that adopted by Mr. Marth in the calculation of his elaborate ephemerides of the satellites, to which he acknowledges his obligations.

We subjoin the elements of the four satellites interior to Titan which were measured at Geneva :—

	ENCELADUS	TETHYS	DIONE	RHEA
Epoch	Oct 8°	Oct 27°	Oct. 27°	Oct. 27°
Mean long.	5° 18' 3	300° 2' 2	155° 5' 2	309° 42' 9
Peri-Saturnium	181° 45' 3	204° 6' 8	180° 16' 8	239° 26' 0
Node	127° 5' 9	113° 57' 6	124° 17' 0	127° 4' 5
Inclination	4° 38' 0	7° 0' 7	6° 41' 5	6° 36' 2
Eccentricity	0·066235	0·006847	0·016888	0·014657
Semi-axis major	34° 29'	42° 48'	54° 58'	75° 97'
	d. h. m. s.	d. h. m. s.	d. h. m. s.	d. h. m. s.
Tropical revolution	1 8 52 40' 5	1 21 18 8' 4	2 17 40 54' 1	4 12 25 25' 4

The node and inclination are referred to the plane of the terrestrial equator.

The separate values of the mass of Saturn which M. Meyer deduces from his observations are discordant.

THE LUNAR ECLIPSE ON DECEMBER 5.—The eclipse of the moon next Monday evening, though very nearly total, will not be actually so, the magnitude being 0·973. The first contact with the shadow occurs at 3h. 28m., but the moon does not rise at Greenwich till 3h. 50m. The middle of the eclipse occurs at 5h. 8m., and the last contact with shadow at 6h. 49m. The shadow enters upon the moon's surface at about 60° from the N. point of the limb towards the east. The fifth magnitude star  $\iota$  Tauri is occulted at Greenwich at 6h. 23m., before the shadow is off the disk.

On October 13, 1856, there was a lunar eclipse of similar character, magnitude 0·994.

VARIABLE STARS.—R Leporis. According to Dr. Julius Schmidt's observations during the interval 1865-1875, the mean

period of this variable appears to be about  $436\frac{1}{2}$  days, and a maximum may be expected about January 19, 1882; its magnitude at maximum has been estimated 6.5 by Schmidt and 6 by Gould; at minimum it is about 8.5. Observations of the degree of intensity of colour in this "crimson star" are desirable, as there are indications that it has varied with variation in brightness. At times it has been recorded that the red colour was not particularly striking, whereas at the first observation of this star in October 1845 it arrested attention whilst comet-sweeping. (2) R. Draconis. Dr. Schmidt noted a maximum on April 22 in the present year, or 251 days after the preceding one, so that another maximum may be looked for about December 29. The star is Lalande 30387, and its variability was detected at Christania; the position for 1882° is in R.A. 16h. 32m. 20s. Decl.  $+67^{\circ} 0' 1''$ ; it is followed by a star 8.9m. (L 30413) by 53s., 1' 5 to the south of it. Prof. Pickering's suspected variable of 1881, September 13, is about  $5\frac{1}{2}$  to the north; R.A. 16h. 31m. 32s., Decl.  $+72^{\circ} 32'$ ; it is "red, spectrum-banded."

(3) μ Cephei (Bayer) is probably now on the increase, but we do not find very recent observations; the position of this "garnet-sidus" for 1882° is in R.A. 21h. 30m. 53.7s., Decl.  $+58^{\circ} 14' 21''$ ; Argelander's mean period is 432 days, Prof. Schönfeld calls it "irregular."

#### THE ROYAL SOCIETY—ADDRESS OF THE PRESIDENT

ON the occasions of our anniversary our first glance is usually retrospective, in memory of those once among our numbers, but now surviving only in their works. On our home list we have this year lost more than a score of Fellows. On the foreign list we have lost but one; that loss will however be severely, if not so widely, felt.

In Michael Chasles mathematicians recognise a geometer of unusual powers, who, having devoted a long life to his favourite study, has left an extensive and characteristic train of researches behind him. But a larger circle of friends recognised in him a great and good man, beloved by all who knew him, and respected beyond the range of his personal acquaintance. As a pure geometer he belonged to a class of mathematicians for which the Academy of Sciences of Paris has long been justly celebrated; but whose numbers appear liable to a perceptible fluctuation, perhaps partly owing to the brilliant opportunities and the varied fascinations which modern algebra offers to the student. Eminent in a nation which has always been intolerant of obscurity in science, he showed in a remarkable degree how much might be elicited through precision of thought and by clearness of exposition from a few well-selected and fertile ideas. Such, for instance, proved to be the consideration of Anharmonic Ratios, the principle of Correspondence, and the method of Characteristics. Whether in the latter he had struck a vein so completely out of the range of the analyst, as he himself supposed, may perhaps be still claimed as an open question; but certain it is that he showed the fertility of the method by continuing to deduce from it an apparently inexhaustible flow of theorems, even after the more serious part of his mathematical work had been done. And there is little doubt that long after the time when many subsequent works have fulfilled their purpose, and have fallen into a natural oblivion, his "Aperçu Historique," his "Géométrie Supérieure," and the fragment of his "Traité des Sections Coniques," will be regarded as classics in the library of the mathematician.

Turning to the home list, the remark made in my last address, viz. that our losses had been mainly among our older Fellows, might be repeated with even more emphasis on the present occasion. Of the twenty-two who have died during the intervening period nine had reached the age of three score and ten, eight that of four score, and one, Dr. Billing, had attained his ninety-first year.

In Lord Beaconsfield and Sir James Colvile we have lost two distinguished members, elected under the statute which gave a new definition of the privileged class a few years ago. Lord Hatherley will be recollected as having served on our Council within recent years, and as having often given us very useful advice on subjects requiring the sound judgment of an experienced mind. Although Lord Hatherley would doubtless have been elected, as a member of the Privy Council, under the

<sup>1</sup> Address of William Spottiswoode, D.C.L., LL.D., the president, delivered at the anniversary meeting of the Royal Society on Wednesday, November 30, 1881.

statute above mentioned, it is perhaps worth remark that he was elected under statute previously existing, and that his fellowship dated from the year 1833.

The late Dean of Westminster furnishes another instance of the wise exercise of a power which the Royal Society has always reserved to itself, notwithstanding the changes made in 1847, of electing from time to time men of eminent distinction in other avocations of life than those of strict science. Of Dr. Stanley's attainments and merits in those other directions it is not my province to speak; and, indeed, it is the less necessary that I should do so, for they were so many and so varied that in one way or other they were known to all. But he was conspicuous, both among the members of his own profession and among many others who have neither predilection nor training for actual science, for his genuine and honest sympathy with its principles and its objects, and with the labours of those who cultivate it.

In Dr. Lloyd, whose age was coeval with the century, and who was a fellow-worker with Herschel, Whewell, Peacock, and Sir W. R. Hamilton, we seem to have lost one of the links which connected us with a past generation. While himself no mean mathematician, he was distinguished especially in the sciences of optics and of magnetism. In the subject of optics he had the rare opportunity of supplying the experimental verification of Sir W. R. Hamilton's brilliant geometrical conclusions on the configuration of the wave-surface; and it was largely due to his patience, his delicacy of touch, and his almost instinctive sagacity, that the phenomena of conical refraction were first made visible to the human eye. In magnetism he assisted in the formation of the great survey of the globe, initiated by Sir E. Sabine, and as director of a magnetic observatory in Dublin he made valuable contributions to the subject. His scientific remains, brought together in one volume, have been a welcome addition to the library both of the mathematician and of the experimentalist. His interest in science and in its promoters was active throughout his long life; and those on whom the honorary degree of LL.D. was conferred at the late meeting of the British Association in Dublin, will always cherish as a pleasant reminiscence the fact of having received it at his hands.

Dr. Bigsby was one of the earlier cultivators of Geology. Some of his first studies were made at a time when the subject was hardly a science; but in attaining the advanced age of eighty-nine he lived to see it what it has since become. He founded a medal at the Geological Society, of which he was for many years a member.

We are again reminded of the progress which has been made in science, and in the cultivation of it during the present generation, by the fact that until the last day of last year we could reckon among our Fellows Dr. John Stenhouse, one of the surviving founders of the Chemical Society.

On the subject of our property there is little change to report. Further investments have been made in due course on account of the Fees Reduction Fund. The sale of the Acton estate has not yet been completed, but a deposit is in hand, and a half year's interest on the balance has been received.

The Charitable Trusts Bill, which was introduced into Parliament last session, and which would have affected our interests had it not been for a clause introduced by our Fellow the Marquis of Salisbury, specially exempting the Royal Society from its operation, was withdrawn.

The collection of portraits in the possession of the Society has been enriched by the addition of a portrait of Sir Joseph Dalton Hooker, painted by John Collier, Esq., at the expense of a considerable number of our Fellows, who were desirous of expressing their sense of the important services rendered by Sir Joseph to the Society, and at the same time of securing a permanent memorial of their late president. It is to be hoped that advantage may be taken of any suitable occasions that may arise from time to time of adding to our gallery of historical records of the great men whom we have reckoned among our Fellows.

The Fellows will learn with satisfaction that the first part of the new edition of our library catalogue is published. This part, consisting of 232 pages, contains the *Transactions*, *Proceedings*, and *Journals* published by societies and institutions in nearly all parts of the world; and also the observations, reports, and accounts of surveys which are to be found in our library. As our Library Committee has always devoted great attention to securing by exchange or by purchase publications of this class, and as the main strength of our library consequently lies in our collection of them, the part in question will form the most important section of the entire catalogue.